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Economic and environmental questions: Science and technology for development

Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels

Report of the Secretary-General

Executive Summary

This report has been prepared in response to the request by the Economic and Social Council to the United Nations Secretary-General to inform the Commission on Science and Technology for Development (CSTD) concerning the implementation of the outcomes of the World Summit on the Information Society (WSIS). It reviews progress in implementation of WSIS outcomes and identifies obstacles and constraints encountered. The report has been prepared by the UNCTAD secretariat based on information provided by entities in the United Nations system and elsewhere on their efforts in 2011 to implement the WSIS outcomes, with a view to sharing effective practices and lessons learned.

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** E/2012/1.

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Introduction

1. This report has been prepared in response to Economic and Social Council resolution 2006/46, which requests the United Nations Secretary-General to inform the Commission about the implementation of WSIS outcomes, based on inputs from entities in the United Nations system and elsewhere.[1]

2. The report includes information provided by the United Nations and other international stakeholders, following a letter from the Secretary-General of UNCTAD inviting contributions on trends, achievements and obstacles in implementing WSIS outcomes. The report does not provide a comprehensive account of efforts relating to WSIS implementation but focuses on major initiatives undertaken since February 2011, as reported by relevant organizations.[2]

I. Key trends

3. There has been tremendous growth in the information and communications technology (ICT) sector and the role of ICTs in social and economic development since WSIS. The number of mobile subscriptions worldwide has almost trebled to 6 billion.[3] Smartphones have transformed mobile telephones into multi-purpose devices, offering new applications and services. Broadband networks have become pervasive in developed countries, though they are less extensive in developing countries. The proportion of people with a computer worldwide is expected to rise from 1 in 50 in 2008 to 1 in 3 by 2020,[4] while the number of Internet users has more than doubled, to 2.5 billion since 2005.[5] The Internet plays an increasingly important role in public services and private transactions, and the evolving role of Internet intermediaries is creating challenges and opportunities for different stakeholders. New Internet applications, particularly social networking, have made the Internet more interactive and have made it easy for users to publish their own content. At the same time, challenges include getting protected content to users, persons with disabilities and other disadvantaged and vulnerable groups while respecting creators' interests.

4. The United Nations and international agencies have begun preparing for the 10-year review of WSIS outcomes scheduled for 2014–15. During 2011, the Partnership on Measuring ICT for Development drew up indicators to help assess countries' progress in achieving WSIS targets.[6] The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) considered the impact of the Internet on its

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[1] COE, ECA, ECLAC, ESCAP, ESCWA, FAO, Government of Nigeria, ICC-BASIS, IGF, ISOC, ITAN, ITC, ITU, UNCTAD, UNDESA, UNECE, UNEP, UNESCO, UNIDO, WHO, WIPO, WMO, WTO.

[2] Full submissions from these organizations are published on the CSTD website: http://www.unctad.org/Templates/Page.asp?intItemID=6252&lang=1.

[3] http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html.

[4] The Climate Group for the Global eSustainability Initiative, SMART 2020, 2008, http://www.gesi.org/LinkClick.aspx?fileticket=7X8GQ7HNR%2bg%3d&tabid=60.

[5] http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html.

[6] http://www.itu.int/ITU-D/ict/publications/idi/2011/Material/MIS_2011_without_annex_5.pdf; http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-MEAS_WSIS-2011-PDF-E.pdf.

mandate.[7] CSTD published a comprehensive review of experience since WSIS, *Implementing WSIS Outcomes*.[8]

A. Transition from mobile telephony to mobile Internet

5. Mobility and broadband have become the most important indicators for assessing progress in the access, affordability and use of ICTs. The number of mobile-cellular telephone subscriptions almost equals the number of the world's inhabitants.[9] The International Telecommunication Union (ITU) predicts that mobile networks will cover all inhabited areas worldwide by 2015.[10] In little more than a decade, access to telephony in most developing countries has changed from a luxury of the rich to a fact of life for the majority. Even in industrial countries that have near-universal access to fixed telephones, mobility has transformed the way people use telephony and engage with one another.

6. Changes in the quality and character of mobile telephony have become as important as their increasing numbers. Mobile phones are now multi-purpose devices that give access to services far beyond telephony. Since the advent of smartphones and tablet computers, and the deployment of 3G (third generation) mobile technology, mobile devices and networks have become widely used for Internet access, making the Internet available to people wherever they are and facilitating the growth of social networking, microblogging and other sites well suited for use while on the move. In some developing countries such as Kenya, almost all Internet subscriptions are now on mobile networks.11 The rapid growth of mobile Internet is liberating Internet use from fixed locations and reshaping business models for mobile telecommunications.

B. Broadband infrastructure and prospects

7. By December 2011, ITU estimated there were more than 1.7 billion broadband subscriptions worldwide, up 27 per cent over 12 months. About two thirds of these were mobile-broadband subscriptions, while over 40 per cent were in developing countries.[12]

8. Private and public investment is taking place in all regions, including with support from international financial institutions (IFIs). However, network deployment is slower in the least developed countries (LDCs), and broadband connectivity is much more limited in Africa. United Nations regional commissions are concerned that new digital divides may be emerging as a result, both between and within countries.

9. Governments and international agencies have high hopes that broadband services will enable a step change in economic productivity, public service delivery and access to knowledge, thereby contributing to social and economic development, including the achievement of the Millennium Development Goals (MDGs). The Broadband Commission for Digital Development has assessed the prospects of and promoted broadband networks in development. However, technology alone cannot resolve development challenges. Other factors include funding, legal and regulatory frameworks, government capacity and human

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[7] http://unesdoc.unesco.org/images/0019/001920/192096e.pdf.

[8] http://www.unctad.org/Templates/webflyer.asp?docid=15060&intItemID=4839&lang=1.

[9] However, because many people own more than one mobile subscription, the number of mobile phone subscribers is significantly below the number of subscriptions. In contrast, in developing countries, one subscription is often used by multiple users.

[10] *World Telecommunication/ICT Development Report, 2010, Monitoring the WSIS Targets*, p. 3. http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-WTDR-2010-SUM-PDF-E.pdf.

[11] http://www.cck.go.ke/resc/downloads/SECTOR_STATISTICS_REPORT_Q1_11-12.pdf.

[12] http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html.

resources in areas such as health, science, multilingualism and education. Governments, international agencies, ICT businesses and civil society need to work together to integrate new applications with development strategies and build capacity to derive maximum benefit from the opportunities of broadband.

10. ITU has recently established global standards for the radio interface for the next generation of the international mobile telecommunication family of systems able to provide wireless broadband access; this also includes the availability of additional radio frequency spectrum to meet growing requirements for the timely deployment of mobile-broadband networks.

C. Impact of ICTs on politics, society and rights

11. Mobile telephones, social networks and microblogging sites have greatly extended the information sources available to people, their ability to express opinions and their ability to coordinate activities, including political protest. They are widely credited with a significant role in political transformations that took place during 2011, helping to change relationships between citizens and the State. As well as governments, the diversity of new information sources enabled by the Internet challenges the sustainability of the print and broadcast media, while new advertising-focused business models and online marketing have facilitated the rapid growth of new global businesses.

12. These developments exemplify wider changes in society, including rights, which are emerging as mobile telephony and the Internet become more pervasive. ICTs have also raised concerns about creators' interests, privacy and data protection, including the ability of governments and businesses to track personal activity and social networks. Patterns of economic production, employment and consumption are changing as a result of automation and the Internet – trends that are expedited by mobility and broadband. Societies and citizens are becoming increasingly dependent on digital networks and devices, blurring the boundaries between professional and personal lives and increasing vulnerability to cyber-attacks and network failures. The long-term impact of these developments in ICT technology and markets is unpredictable, making it difficult for governments to anticipate outcomes and plan accordingly.

D. Cybersecurity

13. Governments and businesses are paying increased attention to cybersecurity, including the threats posed by cybercrime, disruption to social and economic order and threats to the integrity of the Internet from spam and malware, hacking, distributed denial of service and other attacks. Government databases, business information and individual privacy are all threatened. Cybercrime is now one of the top four economic crimes[13] and has become a focus of activity for organized crime syndicates.

14. Risks posed by these problems are increasing because of the growing dependence of government and business systems on networked computers to manage resources and deliver services and because of the vulnerability of online devices and applications. A 2011 study calculated the annual cost of global cybercrime as $114 billion, with more than twice as much again in consequential losses – significantly higher than that from international drug trafficking.[14]

[13] http://www.pwc.lu/en/fraud-prevention-detection/docs/pwc-global-economic-crime-survey-2011.pdf.
[14] http://www.symantec.com/about/news/release/article.jsp?prid=20110907_02.

15. A critical challenge concerns finding ways to address cybersecurity issues without undermining the Internet's ability to foster innovation and deliver the enhanced information and services that users value. The international community has also emphasized the need to tackle these issues within the framework of human rights agreements. Developments such as cloud computing may increase vulnerability, while also providing opportunities to enhance security. Technical innovation, international cooperation and public-private partnerships are essential to the work of governments and other stakeholders in this field. Capacity-building is also needed.

E. ICTs and sustainable development

16. The year 2012 marks the twentieth anniversary of the first United Nations Conference on Environment and Development, and the United Nations Conference on Sustainable Development (UNCSD) will also be held in Brazil. The period since 1992 has seen a transformation in information and communications, including the development of mass markets for mobile telephony and the Internet, enormous growth in computing power and the extensive automation of government services and business processes. The international community has also gained a deeper understanding of environmental threats such as climate change, sustainability and the impact of ICTs on social and economic change.

17. The ICT sector interacts with environmental sustainability in many ways. Sensors and other ICT devices have increased capacity to monitor environmental change, manage weather crises and adapt to meet climate change impacts. Smart systems are expected to improve the efficiency and reduce environmental costs of power generation, transport and logistics. However, electricity consumption by ICT networks and devices is a growing source of greenhouse gas emissions, while the short life cycle of devices generates high volumes of electronic waste. This e-waste causes a rapidly growing disposal problem particularly in developing countries. Governments and businesses can work together to mitigate the negative impacts and maximize the environmental gains from ICT use.

18. The development of an information society towards knowledge societies is also changing the structures of societies and economies. The long-term impact of ICTs on the sustainability of human prosperity, social and economic structures and patterns of behaviour could be profound. In this context, the United Nations Group on the Information Society (UNGIS) coordinated a joint contribution to the preparatory process of UNCSD, highlighting relevant aspects of ICTs and the information society to help achieve a green economy and sustainable development.[15]

II. Implementation and follow-up at the regional and international levels

A. Implementation and follow-up at the regional level

1. Africa

19. African countries have continued to make significant progress in the access to ICTs and their application to development. The deployment of new submarine cables and investments in terrestrial broadband infrastructure have improved connectivity, increased

[15] http://www.ungis.org/ThematicMeetingsActivities/JointContributiontotheRio20Process.aspx.

bandwidth, reduced costs and facilitated services, including mobile Internet. There are now more than 50 mobile phone subscriptions per 100 inhabitants in sub-Saharan Africa.[16] However, broadband deployment has not grown as rapidly as in other regions.

20. The Economic Commission for Africa (ECA) supports the development of national ICT strategies. Some 43 African countries have national ICT policies, while some have developed sectoral ICT strategies for education, health, agriculture and commerce. A survey of governments in 2011 indicated increased investment in ICTs for development, more widespread deployment of e-government portals and greater integration of ICTs in schools.

21. ECA fostered capacity-building in the measurement of ICT indicators by means of the Scan-ICT initiative during 2011.[17] It is also working with the African Union and regional economic communities to harmonize legislation on cybersecurity and electronic transactions. ECA launched an e-commerce readiness assessment that will result in a subregional e-commerce strategy of the Southern African Development Community.

22. ECA continued to support knowledge networks through ICT access points for disadvantaged communities in conjunction with the Economic and Social Commission for Western Asia (ESCWA). At the sixth Internet Governance Forum (IGF), ECA launched the African IGF in collaboration with the African Union Commission and African subregional IGFs.

23. In collaboration with the Diplo Foundation, ECA has organized training on e-diplomacy and Internet governance, complementing delivery of the Academy of ICT Essentials for Government Leaders online programme through the Information Technology Centre for Africa.

24. The African Regional Preparatory Meeting of the United Nations Global Geospatial Information Management Initiative recommended the development of an African action plan.[18] ECA has supported the development of regional geospatial databases in sectors such as health, water and emergency management.

25. Finally, in West Africa, the European Commission and ITU are sponsoring a project called "Support for the Harmonization of the ICT Policies in Sub-Saharan Africa".[19]

2. Asia and the Pacific

26. Rapid growth in ICT access and usage has continued in Asia and the Pacific. Mobile phones are rapidly becoming ubiquitous. However, there are substantial disparities between countries and digital divides affecting women, the poor and those living in rural areas, particularly concerning broadband deployment.

27. The Economic and Social Commission for Asia and the Pacific (ESCAP) works with other regional agencies, including the Association of Southeast Asian Nations, to tackle connectivity challenges and support regional integration. It organized the Asia-Pacific Regional Forum on ICT Applications, in partnership with ITU and the Government of Thailand. The Regional Interagency Working Group on ICT, including ESCAP, ITU and the Asia-Pacific Telecommunity, reviewed the standardization of programmes in the region.

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[16] http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html.

[17] http://www.uneca.org/aisi/docs/ScanICT.pdf.

[18] http://ggim.un.org/docs/Addis%20Ababa%20Declaration%20on%20GIM_Final.pdf.

[19] http://www.itu.int/ITU-D/projects/ITU_EC_ACP/hipssa/index.html.

28. The ESCAP Committee on Information and Communications Technology continues to promote efforts to address technical challenges and opportunities for ICTs to enhance development, including mobile banking and digital remittances.

29. During 2011, ESCAP raised awareness of space-based technology in areas such as meteorology and disaster monitoring. With partner agencies, it launched the Asia-Pacific Gateway for Disaster Risk Reduction and Development.

30. UNESCO published *Information Policies in Asia: Development of Indicators*,[20] emphasizing the importance of connectivity, content and competencies required for the transition to information and knowledge-driven economies.

31. The European Commission and ITU sponsor a project on capacity-building and ICT policy, regulatory and legislative frameworks support for Pacific island countries.[21]

3. Western Asia

32. Western Asia has experienced widespread social and political change during 2011. Mobile phones, the Internet and the social media have played a significant part in the dynamics of change and have seen continued strong growth in the number of users, reflecting growing importance of the information society.

33. ESCWA published its fifth *Regional Profile of the Information Society in Western Asia*,[22] illustrating positive trends, including lower costs and more policy engagement with ICTs alongside increased usage. The information society portal for the ESCWA region provides additional information and resources for policymakers and other stakeholders.[23]

34. ESCWA published a study entitled *Promoting the ICT Sector to Meet the Challenges of the Knowledge Economy*,[24] which proposed measures to enhance the contribution of ICTs to development, foster sectoral creativity and stimulate innovation. The ESCWA Technology Centre[25] launched capacity-building initiatives focused on technology transfer, entrepreneurship and intellectual property (IP). ESCWA continued to support the modernization and harmonization of cyberlegislation. A study of the standardization of e-services made recommendations concerning infrastructure, regulation, standards, content and user applications. ESCWA also continued to address the need to standardize and measure development of the information society in its region.

35. Work continues to create an enabling environment for Arabic e-services following the introduction of multilingual Internet domain names, including support for the formation of an Arab top-level domains registry.

4. Latin America and the Caribbean

36. Countries in Latin America and the Caribbean have seen continued progress in the access and use of ICTs, but more effort is needed to establish inclusive information societies and take advantage of more sophisticated ICTs for economic development. The Economic Commission for Latin America and the Caribbean (ECLAC) provides the technical secretariat for implementing the 2010–2015 Regional Action Plan for the Information Society (eLAC2015), adopted by regional governments in 2010. This sets out

[20] http://unesdoc.unesco.org/images/0020/002070/207048E.pdf.
[21] http://www.itu.int/ITU-D/projects/ITU_EC_ACP/icb4pis/index.html.
[22] http://www.escwa.un.org/information/publications/edit/upload/E_ESCWA_ICTD_11_4_e.pdf.
[23] http://isper.escwa.org.lb.
[24] http://css.escwa.org.lb/ICTD/1433/10a.pdf.
[25] http://www.escwa.un.org/divisions/ictd/etc/main.asp.

priorities for information societies in the region, with the flagship objective of enabling universal broadband access.[26]

37. ECLAC also acts as secretariat of the Regional Dialogue on Broadband, established with support from the Government of Chile. This has agreed a basic definition of broadband for the region, drawn up relevant indicators, promoted the establishment of Internet exchange points and encouraged the generation and hosting of local content. In 2011, it launched the Regional Broadband Observatory to provide information and indicators on service diffusion and quality to policymakers to facilitate the evaluation and monitoring of broadband development.[27]

38. The Observatory for the Information Society in Latin America and the Caribbean measures other aspects of ICT performance. Its statistical information system on ICT gathers data from household surveys, allowing the analysis of ICT trends over time.[28]

39. ECLAC is implementing a series of regional dialogues for inclusive and innovative digital agendas.[29] Capacity-building initiatives included training for broadband policymakers and workshops concerned with e-health and digital waste management.

40. The European Commission and ITU fund the project, "Enhancing Competitiveness in the Caribbean through the Harmonization of ICT Policies, Legislation and Regulatory Procedures".[30]

5. Europe

41. ECE manages the United Nations Centre for Trade Facilitation and Electronic Business. During 2011, the Centre issued recommendations on data standardization and legal frameworks for single windows. ECE worked with other regional commissions to organize a global conference on connecting international trade, which initiated the development of a road map for ICT-enabled trade facilitation.[31] It works with ESCAP to support the United Nations Network of Experts for Paperless Trade in Asia and the Pacific and is developing an intelligent transport system strategy.

42. The Council of Europe issued multiple declarations on Internet governance during 2011, including new declarations on Internet principles,[32] freedom of expression and of association. Work has continued on cybercrime and child protection. A draft Strategy on Internet governance 2012–2015 was developed for adoption in February 2012.[33]

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[26] http://www.cepal.org/socinfo/noticias/documentosdetrabajo/5/41775/2010-820-eLAC-Plan_of_Action.pdf.

[27] http://www.eclac.cl/socinfo/noticias/paginas/3/44983/newsletter17ENG.pdf.

[28] http://www.eclac.org/cgi-bin/getprod.asp?xml=/socinfo/noticias/paginas/8/44988/P44988.xml&xsl=/socinfo/tpl-i/p18f-st.xsl&base=/socinfo/tpl-i/top-bottom.xsl.

[29] http://www.eclac.org/cgi-bin/getProd.asp?xml=/socinfo/noticias/noticias/1/44271/P44271.xml&xsl=/socinfo/tpl-i/p1f.xsl&base=/socinfo/tpl-i/top-bottom.xsl.

[30] http://www.itu.int/ITU-D/projects/ITU_EC_ACP/hipcar/index.html.

[31] http://www.unece.org/fileadmin/DAM/trade/Trade_Facilitation_Forum/ConferenceConclusions.pdf.

[32] https://wcd.coe.int/ViewDoc.jsp?id=1835773.

[33] http://www.coe.int/t/informationsociety/conf2011/IG_CoEStrategy_EN.pdf.

B. Implementation and follow-up at the international level

1. General Assembly

43. The General Assembly adopted resolution A/RES/66/184, which welcomed continuing progress in the ICT sector, but expressed concern at the continuing digital divide and the potential adverse impact of world economic crises on ICT investment and diffusion.

44. The resolution called on the CSTD Working Group on Improvements to the Internet Governance Forum to submit recommendations to the fifteenth session of the Commission, for further consideration by the Economic and Social Council and the Assembly. It invited the chair of the Commission to convene an open meeting of all stakeholders to develop a shared understanding of enhanced cooperation on public policy issues pertaining to the Internet, in accordance with the Tunis Agenda for the Information Society.[34]

2. Economic and Social Council

45. The Economic and Social Council adopted resolution 2011/16, which welcomed contributions by United Nations agencies and other stakeholders, and the rapid growth in mobile telephony, but expressed concern that, for the majority of the poor, the developmental promise of ICTs remains unfulfilled, particularly where broadband networks are concerned. It noted that the present mobile-led communications environment is changing business models in ways that require a rethinking of government strategies. It encouraged governments to stimulate universal access to broadband and bridge the digital divide, and United Nations agencies to incorporate WSIS recommendations in development assistance frameworks.

46. It endorsed the work of the Partnership on Measuring ICTs for Development and urged development agencies to promote assessment of the impact of ICTs on poverty. It extended the mandate of the Working Group and requested it to report to the fifteenth CSTD session.

3. United Nations Group on the Information Society

47. In April 2011, the Chief Executive Board (CEB) requested that UNGIS develop plans for the 10-year review of implementation of WSIS outcomes.[35] UNGIS, chaired by ITU in 2011, designed an open consultation process in five phases. This process kicked off at the WSIS Forum 2011 and included face-to-face meetings, online discussions and formal stakeholder submissions. Consultations concluded with the Draft plan of action and proposed expected final outcomes of the overall review process (WSIS+10). UNGIS will report results and preparations to CEB in April 2012 and then to the Commission in May 2012, when the WSIS Forum will also provide an opportunity to define the scope and arrangements of the review, which will also feed into the 2015 MDG review.

48. UNGIS organized a special session on harnessing ICTs for development during the fourth United Nations Conference on the Least Developed Countries.[36] It launched the Joint Initiative on Mobile for Development at ITU Telecom World.[37] UNGIS also coordinated a joint contribution to the preparatory process of UNCSD.[38]

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[34] http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=2267|0.

[35] http://www.unsceb.org/ceb/rep/ceb/fin/CEB-2011-1-Conclusions-Final.pdf.

[36] http://portal.unesco.org/ci/en/ev.php-URL_ID=31369&URL_DO=DO_TOPIC&URL_SECTION=201.html.

[37] http://www.ungis.org/Initiatives/JointInitiatives/MobileforDevelopment.aspx.

[38] http://www.ungis.org/ThematicMeetingsActivities/JointContributiontotheRio20Process.aspx.

4. Facilitation and coordination of multi-stakeholder implementation of the Geneva Plan of Action

49. ITU hosted and organized, in cooperation with UNESCO, UNDP and UNCTAD, the 2011 WSIS Forum at International Labour Organization headquarters, attracting more than 1,150 participants.[39] It featured high-level sessions on multi-stakeholder collaboration to achieve WSIS outcomes, the impact of social media, digital inclusion, ICTs as enablers of development in LDCs and cybersecurity. It also included a parliamentary forum, open consultations on the implementation of WSIS outcomes and the WSIS+10 Review, thematic workshops, country workshops, briefings and publication launches. The annual meeting of WSIS action-line facilitators was held on 20 May as an integral part of the Forum. A consultation process to develop the programme for the 2012 WSIS Forum was launched in October 2011.

50. UNESCO manages an online collaborative platform, the WSIS Knowledge Communities,[40] which now has more than 2,800 participants. It supported online contributions to consultations on the WSIS Forum and WSIS+10 Review, as well as discussions on themes, including open access and open educational resources.

51. ITU maintains the *WSIS Stocktaking Database*, which includes more than 5,600 entries. ITU further developed the Web 2.0 WSIS Stocktaking Platform to facilitate the exchange of information on WSIS activities. The platform provides information to more than 3,150 registered users from 147 countries. A compilation of *WSIS Stocktaking Success Stories* was published during 2011.[41] An interactive consultation on the future of the stocktaking process was held at the 2011 WSIS Forum. Additionally, the WSIS Project Prizes[42] initiative was launched, and more than 50 countries submitted projects.

5. Civil society, business and multi-stakeholder partnerships

52. Business Action to Support the Information Society, an initiative of the International Chamber of Commerce (ICC), works with businesses to support WSIS outcomes, including by participating in the WSIS Forum and IGF. The ICC Commission on the Digital Economy provides business input into ICT and Internet policy discussions and decision-making processes. Corporate responsibility programmes and public-private partnerships support development in health, education, employment and entrepreneurship.

53. In 2011, the Association for Progressive Communications and the Humanist Institute for Cooperation with Developing Countries launched the fifth edition of the *Global Information Society Watch* report, which focused on Internet rights and democratization.

54. The Internet Society (ISOC) is a leading Internet forum and the organizational home for the Internet Engineering Task Force. Its Ambassadors programme enables participants to attend IGF.

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[39] http://www.itu.int/wsis/implementation/2011/forum/inc/Documents/WSISForum2011OutcomeDocument.pdf.

[40] www.wsis-community.org.

[41] http://groups.itu.int/Portals/30/documents/WSIS/WSIS_ST_Success_Stories_2011_E.pdf.

[42] www.wsis.org/stocktaking/prizes.

6. Facilitation of action lines and selected implementation of activities of United Nations entities

(a) Implementation of action lines

(i) The role of public governance authorities and all stakeholders in the promotion of ICTs for development (C1)

55. The Broadband Commission for Digital Development considers access to broadband infrastructure and services to be a top priority for countries at all levels of development.[43]

56. Governments continue to design and implement national strategies for ICTs in development with support from regional commissions and IFIs. The African Development Bank commissioned studies of the potential use of ICTs to inform future investment decisions by the Bank and its development partners.[44]

57. The ITU organized its fourth Global Industry Leaders Forum and instigated debate at its quadrennial ITU Telecom World event. The ITU Dedicated Group on International Internet-related Issues provides a forum for governments to discuss Internet policy issues.

(ii) Information and communication infrastructure (C2)

58. ITU organized a facilitation meeting at the 2011 WSIS Forum that featured a panel discussion on broadband infrastructure for connecting the unconnected. The rapid growth of broadband raises technical and regulatory challenges concerning standards, spectrum, investment and competitive markets. The United Nations and other agencies are working with governments and other stakeholders to ensure affordable high-quality broadband infrastructure in all territories and maximize its contribution to development.

59. ITU and UNESCO coordinate the Broadband Commission for Digital Development, which published a *Platform for Progress*, presenting country case studies and investment models.[45] The Broadband Commission issued a global challenge to make broadband policy universal and broadband usage affordable, and to connect homes and people to broadband services.[46]

60. ITU continues to address infrastructure development, deployment and regulation through its wide-ranging programmes, meetings and publications. Its telecommunication standardization and radiocommunications bureaux play leading roles in developing standards and managing spectrum. Important new recommendations and standards developed and approved during 2011 concerned next generation networks and smart grid applications.

(iii) Access to information and knowledge (C3)

61. The main focus of the C3 facilitation meeting in 2011 was access for persons with disabilities, including access to the Internet and ICT-enabled education. UNESCO continues to assess global ICT use for teaching students with disabilities. Five regional reports indicated that accessibility measures were introduced by member States.

62. UNESCO undertook multiple activities concerned with open access to information, open educational resources and free and open source software during 2011. UNESCO

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[43] http://www.broadbandcommission.org/Documents/Broadband_Challenge.pdf.
[44] http://www.etransformafrica.org.
[45] http://www.broadbandcommission.org/Reports/Report_2.pdf.
[46] http://www.broadbandcommission.org/Documents/Broadband_Targets.pdf.

organized a regional dialogue on open access in New Delhi.[47] The Global Open Access Portal[48] was launched and currently has information from over 148 Member States.

63. The year 2011 saw the tenth anniversary of the Research4Life programme, through which the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP) and the World Intellectual Property Organization (WIPO) work with academic and publishing partners to offer developing countries free or low-cost access to peer-reviewed journals.

64. During 2011, the WIPO Standing Committee on Copyright and Related Rights focused on access for the visually impaired. WIPO, with the support of partner institutions, created the Stakeholders' Platform, followed by the launch of the Trusted Intermediary Global Accessible Resources Project, which will enable publishers to make their titles easily available to trusted intermediaries.[49] WIPO also organized a conference on copyright and development and, with ISOC, a series of meetings on the role of Internet intermediaries in providing access to creative content. The introduction of new Internet global top-level domains raised issues concerning trademarks and IP. The WIPO Arbitration and Mediation Centre has focused on establishing an appropriate legal framework and paperless dispute resolution processes.

65. CSTD considered the role of open access and virtual science libraries in education during its 2011–2012 intersessional panel. WIPO and other intergovernmental organizations[50] are developing a project to draft open licences for intergovernmental organizations, which would take into consideration immunity, jurisdiction and applicable law.

(iv) Capacity-building (C4)

66. The sixth C4 facilitation meeting, organized by ISOC, UNESCO and ITU, focused on leadership, innovation and capacity-building, and was particularly concerned with innovation measurement.

67. The ITU Human Capacity-Building Programme includes regional human capacity development forums, workshops, e-learning and experience sharing. It conducted more than 80 courses through its Centres of Excellence during 2011, including online courses, with an estimated 2,800 participants.

68. UNESCO restructured its Open Training Platform; this makes 3,500 training and learning resources available to more than 100,000 online visitors annually.[51] WIPO provided support for the modernization of regional IP institutions in Africa and to more than 70 national IP offices and collective management institutions. ISOC works with other Internet entities to build technical capacity in Internet deployment and coordination. Other United Nations, intergovernmental and non-governmental agencies launched capacity-building initiatives summarized in contributions to this report.[52]

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[47] http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/all-news/news/open_access_to_scientific_information_on_agenda_of_seminar_in_new_delhi-1/.

[48] http://www.unesco.org/new/en/communication-and-information/portals-and-platforms/goap/.

[49] http://www.visionip.org/portal/en/.

[50] FAO, Organization for Economic Cooperation and Development (OECD), United Nations, World Bank, *International Monetary Fund*.

[51] http://opentraining.unesco-ci.org/cgi-bin/page.cgi?d=1.

[52] http://www.unctad.org/Templates/Page.asp?intItemID=6252&lang=1.

(v) Building confidence and security in the use of ICTs (C5)

69. In 2011, the United Nations, through CEB, gave high priority to cybersecurity and recognized ITU as the leading agency to facilitate the process toward a harmonized cybersecurity policy for programmatic work and the delivery of technical assistance in cybercrime and cybersecurity.

70. A high-level debate, "Building Confidence and Security in Cyberspace", was held during the WSIS Forum 2011. ITU, the Department of Economic and Social Affairs (DESA) and the Inter-Parliamentary Union organized the Fourth Parliamentary Forum on the theme, "The Triple Challenge of Cyber-Security: Information, Citizens and Infrastructure".[53] The Economic and Social Council, DESA and ITU organized a special event on cyber-security and development.

71. The Global Cybersecurity Agenda,[54] launched by ITU in 2007, continues to provide a framework for the international response to the growing challenge. Since 2008, ITU has been working with the International Multilateral Partnership against Cyber Threats (IMPACT) and established the first truly global multi-stakeholder and public-private alliance against cyber threats. ITU and IMPACT have conducted joint capacity-building programmes for more than 30 developing and LDCs on creating national-level computer incident response teams, and 10 countries are now moving towards the implementation of a national team.

72. Following the ITU publication, *Understanding Cybercrime: A Guide for Developing Countries,*[55] ITU and the United Nations Office on Drugs and Crime signed a memorandum of understanding to collaborate globally on helping Member States mitigate the risks posed by cybercrime.

73. During 2011, ITU published the *National Cybersecurity Strategy Guide* to help governments develop national strategies and responses.[56] ECA worked with Africa's regional economic communities to harmonize legislation, electronic transactions, personal data protection and cybercrime. It has prepared a draft cybersecurity convention, with the African Union Commission, to be tabled before African Union Heads of State and Government in July 2012.

74. The impact of the Internet on children concerns many stakeholders. UNESCO and others promote the role of Internet in education and youth participation. The ITU Child Online Protection Global Initiative builds awareness of risks to children, sharing knowledge of tools among practitioners.[57] A survey of national policy and legal frameworks has contributed to the development of the *Child Online Protection Statistical Framework and Indicators.*[58] By means of the Initiative, ITU continues to draw together members of existing initiatives and worked with them to develop initial sets of guidelines.[59]

(vi) The enabling environment (C6)

75. The annual ITU Global Symposium for Regulators focused on the theme, "Smart regulation for a broadband world". The 2010–2011 volume of *Trends in*

[53] http://www.ipu.org/splz-e/ICT11.htm.
[54] http://www.itu.int/osg/csd/cybersecurity/gca/.
[55] http://www.itu.int/ITU-D/cyb/cybersecurity/docs/itu-understanding-cybercrime-guide.pdf.
[56] http://www.itu.int/ITU-D/cyb/cybersecurity/docs/ITUNationalCybersecurityStrategyGuide.pdf.
[57] http://www.itu.int/osg/csd/cybersecurity/gca/cop/.
[58] http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-COP.01-11-2010-PDF-E.pdf.
[59] http://www.itu.int/osg/csd/cybersecurity/gca/cop/.

Telecommunication Reform issued by ITU was also concerned with "Enabling tomorrow's digital world".

76. ITU offers guidance to policymakers and regulators through online resources, including the *ICT Regulation Toolkit* (jointly published with *info*Dev), the World Telecommunication Regulatory Database, the ICT Regulatory Decisions Clearinghouse and the Global Regulators' Exchange, or G-REX. With the European Commission, it has worked to harmonize ICT legal frameworks in Africa, the Caribbean and Pacific island States.

77. The annual C6 facilitation meeting focused on cloud computing as a tool for governments and business, particularly its potential for delivering services at lower cost. Cloud computing raises new challenges concerning competition, interoperability, sovereignty, privacy and security. It was also the theme for the twelfth Forum on Telecommunication/ICT Regulation and Partnership in Africa. The ITU Standardization Bureau has established a focus group on cloud computing standards.

78. The Dedicated Group on International Internet-related Public Policy Issues met twice in 2011. A Council Working Group on Internet-related public policy issues (CWG-Internet) was established as a separate group. CWG-Internet is limited to member States, with open consultation to all stakeholders.

79. Other agencies promote an enabling environment through capacity-building and technical assistance programmes.

(vii) ICT applications (C7)

E-government

80. Dur g 2011, DESA completed Volume IV of the United Nations Public Administration Network *Compendium of Innovative e-Government Practices* and finalized preparations for the 2012 United Nations e-Government Survey, which will focus on e-government for sustainable development. It is developing a series of Public Administration Country Studies to provide online access to information on e-government.

81. DESA undertook more than 15 advisory missions to assist governments in implementing e-government strategies during 2011. It published a report with ITU and OECD entitled *M-Government: Mobile Technologies for Responsive Governments and Connected Societies*.[60] DESA also developed the Measurement and Evaluation Tool for E-Government Readiness in conjunction with Microsoft.[61]

82. The Global Centre for ICT in Parliament has prepared the third *Global Survey of ICT in Parliaments*.[62] The Africa i-Parliaments Action Plan has developed the Bungeni Parliament Information System and supported the Africa Parliamentary Knowledge Network.[63]

[60] http://www.itu.int/ITU-D/cyb/app/m-gov.html.

[61] http://www.unpan.org/DPADM/EGovernment/METERforEGovernment/tabid/1270/language/en-US/Default.aspx.

[62] http://www.ictparliament.org/.

[63] http://www.parliaments.info/; http://www.bungeni.org/.

E-business

83. UNCTAD, the International Trade Centre and FAO organized a joint session during the WSIS Forum 2011 on mobile technology and mobile money applications for small businesses.

84. UNCTAD's 2011 *Information Economy Report* identified new opportunities to use ICTs to enable private-sector development.[64] It called on governments and development partners to take a more holistic approach to leveraging ICTs for business development and to improve cooperation between public and private sectors. UNCTAD also published the *ICT Policy Review of Egypt*.[65]

85. The International Trade Centre developed capacity-building modules concerned with enterprise competitiveness, Web marketing and e-commerce, supported by online diagnostic tools. It promotes mobile applications for small businesses and ICT-enabled market analysis tools for policymakers and assists trade support institutions in the integration of ICTs in their service offerings. The United Nations Industrial Development Organization and ILO developed e-learning initiatives to guide small businesses. WTO continued work on electronic commerce, including capacity-building.

E-learning

86. The C7 facilitation meeting focused on the impact of ICTs on teaching and the role of teachers in applying ICTs to their work, including UNESCO's *ICT Competency Framework for Teachers*. A revised version of the Framework was published in October 2011.

87. UNESCO published *Transforming Education*, which drew on case studies to illustrate the potential of ICTs in e-learning and knowledge sharing. This provided the backdrop for an international workshop on ICT policies for policymakers and facilitated multiple national workshops. UNESCO also organized regional events for policymakers in the Asia-Pacific, in partnership with Intel, and in the Caribbean, in partnership with the World Bank.

88. The UNESCO Institute for Statistics conducted a region-wide data collection exercise on ICT use in education in Latin America and the Caribbean. A partnership with the Talal Abu-Ghazaleh Organization resulted in a study of ICT indicators for education in the Arab region.

89. UNESCO launched the Platform and Guidelines for Open Educational Resources at its thirty-sixth General Conference. In association with Nokia and the United States Government, it launched projects on mobile technologies for literacy education, policy guidelines for mobile learning and mobile technologies for teacher training and development.

E-health

90. During 2011, the WHO Global Observatory for eHealth published reports on online safety, mobile health initiatives and legal frameworks for e-health.[66] WHO also supports access to knowledge for health professionals through its HINARI programme and its Global Health Library.[67]

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[64] http://www.unctad.org/en/docs/ier2011_en.pdf.

[65] http://www.unctad.org/templates/webflyer.asp?docid=15756&intItemID=2068&lang=1.

[66] http://www.who.int/GOe/en.

[67] http://www.who.int/hinari/en/; http://www.globalhealthlibrary.net.

91. WHO and ITU collaborated on the *National e-Health Strategy Toolkit*, offering practical guidance to health administrations.[68] They are also addressing issues concerned with the legal and regulatory environment for e-health. An eHealth pavilion organized by WHO and ITU at Telecom World provided a platform to showcase e-health initiatives and explore means of working together.

92. During the 2011 action-line facilitation meeting, m-health initiatives were considered increasingly important in collecting and analysing community and clinical data, delivering healthcare information and patient support.

93. The earthquake and tsunami in Japan in March 2011 underscored the world's reliance on ICTs for disaster preparedness, response and recovery, particularly where health care is concerned. WHO, ITU and other agencies continued to emphasize the role of ICTs in these areas. CSTD discussed GIS applications in disaster risk management in its 2011–2012 intersessional panel.

E-employment

94. ECA, in collaboration with ITU and the Economic Community of Central African States, launched an e-employment project for the Congo and Gabon to support employment promotion. The project aims to build the capacity of young graduates in job-seeking techniques and assist them to make optimum use of ICTs in job hunting. The project has already enabled hundreds of young Congolese to secure training for the labour market and find jobs.

E-environment

95. An e-environment day was coordinated by UNEP, the Secretariat of the Basel Convention (SBC), the World Meteorological Organization (WMO) and ITU at the 2011 WSIS Forum. This included high-level discussions and facilitation sessions focused on e-waste, the role of ICTs, sustainable development and transition to a green economy.

96. UNEP and SBC promote environmentally sound management of e-waste through the Partnership for Action on Computing Equipment. In October 2011, member countries of the Basel Convention agreed to ban the export of hazardous substances from OECD to non-OECD countries and to move forward in establishing a regime for countries that wish to trade in waste to ensure the minimization of health and environmental impacts. UNEP is implementing programmes to improve e-waste management in several regions and countries with economies in transition.

97. ITU and the Global e-Sustainability Initiative issued a joint publication entitled *Using ICTs to Tackle Climate Change*, while ITU also organized symposiums and other activities to promote green ICTs. WMO introduced a new range of global information system centres[69] during 2011, added smartphone access to its World Weather Information Service, and extended its Severe Weather Forecasting Demonstration Project to five regions after piloting in Southern Africa.[70]

[68] http://www.itu.int/ITU-D/cyb/events/2011/Telecom11/e-health/Presentations/tuesday1-%20WHO&ITU%20eHealth%20National%20Strategy%20Toolkit.pdf.

[69] http://www.wmo.int/pages/prog/www/WIS/centres_en.html.

[70] http://www.wmo.int/pages/prog/www/DPFS/Reports/SWFDP%20FINAL%20REPORT_27feb08.pdf.

E-agriculture

98. The theme for World Telecommunication and Information Society Day 2011 was "Better life in rural communities with ICT". This drew attention to the potential impact of ICTs on agricultural livelihoods.

99. WSIS follow-up activity is underpinned by the e-Agriculture Community of Practice, for which FAO acts as secretariat. By December 2011, this had over 7,500 participants from more than 160 countries.

100. During 2011, the Community focused on gender in ICTs and agriculture, the use of ICTs to enhance markets, and sustainable and scalable information advisory services. It has taken particular interest in the potential of mobile devices and applications.

101. The Community is working with the World Bank to develop the *ICT in Agriculture Sourcebook*.[71] This will offer practical examples of initiatives in different farming sectors where ICTs have improved smallholder livelihoods. It is also working on monitoring and evaluation of e-agriculture projects.

E-science

102. UNESCO's e-science programme has helped enhance and optimize resource utilization and maximize quality and efficiency of learning processes, systems and activities.

103. Science policy support carried out in Africa and in Latin America promotes ICT use for scientific knowledge creation and to enrich science teaching and learning experiences. The project initiated through the complementary efforts of the African Union Commission, the European Union and UNESCO continues to use ICTs to create science awareness and train teachers in science, engineering, technology and mathematics.[72]

104. UNESCO launched the Avicenna Virtual Campus[73] to strengthen teaching capabilities of science teachers in Arab States. An extension, the African Virtual Campus, has been launched in West African countries.

105. The International Oceanographic Commission supported Member States in assessing tsunami risk, implementing tsunami early warning systems and in educating communities at risk about preparedness measures.[74] Similarly, its International Hydrological Programme has developed a geoserver system with online data access and visualization tools, which allow accessing high-resolution precipitation estimates in real and near-real time.

106. Furthermore, the UNESCO Institute for Statistics is undertaking a global consultation on science, technology and innovation statistics and indicators, including ICT use in science.

107. The ARDI[75] and ASPI[76] programmes of WIPO seek to reinforce the capacity of developing countries to participate in science and to support researchers in developing countries in creating and developing new solutions to technical challenges by providing

[71] http://www.ictinagriculture.org.

[72] http://ec.europa.eu/research/iscp/index.cfm?lg=en&pg=africa-3b.

[73] http://www.unesco.org/new/en/natural-sciences/science-technology/sti-policy/african-virtual-campus/.

[74] http://www.unesco.org/new/en/natural-sciences/ioc-oceans/.

[75] http://www.wipo.int/ardi/en/.

[76] http://www.wipo.int/patentscope/en/programs/aspi.

access to online resources such as patent, scientific and technical journal databases, for LDCs for free, and to certain other developing countries at very low cost.

(viii) Cultural diversity and identity, linguistic diversity and local content (C8)

108. UNESCO organized the C8 action-line facilitation meeting for 2011, with a particular focus on indigenous education, as part of a systematic review of ICTs for indigenous communities being undertaken between 2010 and 2015.

109. UNESCO prepared a second consolidated report on the implementation of the Recommendation concerning Promotion and Use of Multilingualism and Universal Access to Cyberspace.[77] It also organized capacity-building workshops on the implementation of the approved relevant normative documents and instruments.

110. The development of internationalized domain names has enabled greater cultural diversity on the Internet and continues to be a focus of activity for ITU, UNESCO and Internet standard-setting and coordination agencies such as the Internet Corporation for Assigned Names and Numbers.

111. ISOC, UNESCO and OECD published a study of the relationship between local content, Internet development and access prices.[78] UNESCO and its partners continues to celebrate International Mother Language Day (21 February), which in 2011 was dedicated to linguistic diversity and new technologies.

112. The Convention on the Protection and Promotion of the Diversity of Cultural Expressions entered its operational phase in 2011, including the launch of 48 projects financed by the UNESCO International Fund for Cultural Diversity.[79]

113. With WIPO's support, national and community processes made use of IP guidelines, best practices and manuals for documenting, digitizing and disseminating intangible cultural heritage. WIPO also organized an international symposium to offer a platform to exchange experiences on the use of registers and databases in relation to IP protection of traditional knowledge and traditional cultural expressions.[80]

(ix) Media (C9)

114. Within the C9 action line, UNESCO concentrated on the promotion of freedom of expression, the development of free, independent and pluralistic media, community media and media education. Its facilitation meeting for 2011 focused on the relationship between broadcasting, particularly public service broadcasting and the social media.

115. Major actions included:

(a) United Nations Inter-Agency Meeting on the Safety of Journalists and the Issue of Impunity and preparation of a related consolidated action plan;

(b) International Symposium on Freedom of Expression;[81]

(c) Report: Freedom of Connection – Freedom of Expression;[82]

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[77] http://unesdoc.unesco.org/images/0021/002108/210804e.pdf.

[78] http://www.oecd.org/dataoecd/4/41/48761013.pdf.

[79] http://www.unesco.org/new/en/culture/themes/cultural-diversity/cultural-expressions/international-fund/.

[80] http://www.wipo.int/meetings/en/2011/wipo_tk_mct_11/index.html.

[81] http://www.unesco.org/new/en/communication-and-information/events/calendar-of-events/events-websites/international-symposium-on-freedom-of-expression/.

(d) The International Programme for the Development of Communication supported projects in more than 70 developing countries;[83]

(e) Assessments of the media landscape, based on the UNESCO Media Development Indicators,[84] in some 20 countries, including Egypt and Tunisia;

(f) Model Media and Information Literacy Curriculum for Teachers[85] and the first International University Network on Media and Information Literacy and Intercultural Dialogue;

(g) Model Curricula for Journalism Education adapted by universities in some 50 countries and supported potential Centres of Excellence in Africa.[86]

116. ITU has continued to support the transition from analogue to digital broadcasting and the development of Internet protocol television standards.

(x) Ethical dimensions of the information society (C10)

117. UNESCO organized an event on the ethical dimensions of the information society at the 2011 WSIS Forum, which focused on freedom and security, privacy, malicious and other harmful activity, and property issues.

118. The UNESCO General Conference took note of the *Code of Ethics of the Information Society* developed within the framework of its Information for All Programme. The Africa Network for Information Ethics organized an academic workshop with the support of UNESCO and other organizations.

119. The 2011 report of the United Nations Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression focused on the impact of the Internet. The Council of Europe developed the *Declaration of Principles* on Internet governance. ICT businesses addressed ethical dimensions of the information society through corporate responsibility programmes and public-private partnerships.

(xi) International and regional cooperation (C11)[87]

120. United Nations entities foster cooperation and work with other agencies through events and joint programmes. Other intergovernmental organizations, IFIs, and private-sector and civil-society associations play a part.

(b) Implementation of themes

(i) Financing mechanisms

121. Developing innovative financing mechanisms for infrastructure and applications is an important theme of work for UNGIS agencies. IFIs provide investment and support the establishment of policy and regulatory environments attractive to investors. Public-private

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[82] http://portal.unesco.org/ci/en/files/30748/12837652519UNESCO-19AUG10.pdf/UNESCO-19AUG10.pdf.

[83] http://www.unesco.org/new/en/communication-and-information/intergovernmental-programmes/ipdc/.

[84] http://unesdoc.unesco.org/images/0016/001631/163102e.pdf.

[85] http://www.unesco.org/new/fr/communication-and-information/resources/publications-and-communication-materials/publications/full-list/media-and-information-literacy-curriculum-for-teachers/.

[86] http://unesdoc.unesco.org/images/0015/001512/151209e.pdf.

[87] For activities carried out in the context of UNGIS, see II.B.3.

partnership development has been a recurrent theme. Private-sector investment in ICTs has focused on mobile networks and broadband infrastructure.

(ii) Internet governance

Enhanced cooperation

122. DESA convened open consultations on the process towards enhanced cooperation and reported to the General Assembly in 2011 through the Economic and Social Council.

123. The General Assembly invited the chair of CSTD to convene a one-day open meeting involving member States and other stakeholders to identify a shared understanding about enhanced cooperation on public policy issues pertaining to the Internet.

Internet Governance Forum

124. The sixth IGF was held in Nairobi, with the theme "Internet as a catalyst for change: access, development, freedoms and innovation". Over 2,000 people participated, with more than 800 taking advantage of 47 remote participation hubs. As well as plenary sessions, the Forum included 122 workshops and other events. A high-level ministerial meeting was organized alongside it by the Government of Kenya and ITU.

125. The spread of regional and national IGF-type meetings continued, with 17 national and 11 regional IGF meetings held during 2011.

126. The CSTD Working Group on Improvements to the Forum has held five meetings, gathered inputs from stakeholders and will report to the fifteenth CSTD session.

127. The seventh meeting of the Forum will take place in Baku, Azerbaijan, in 2012.

(iii) Measuring ICT for Development

128. The Partnership on Measuring ICT for Development published a revised and extended list of core ICT indicators in 2010. The Framework for a Set of e-Government Core Indicators was developed during 2011 under the coordination of ECA. The latest core list was submitted for consideration by the United Nations Statistical Commission in February 2012. Indicators concerned with ICT use in enterprises will be added to the UNCTADstat database.[88]

129. A task group established by the Partnership in 2010 under the leadership of ITU published a proposed statistical framework for measuring the WSIS targets at the 2011 WSIS Forum.[89] This provides the first comprehensive set of measurable indicators for the 10 WSIS targets agreed upon in the Geneva Plan of Action. It will assist analysts and policymakers in reviewing progress systematically ahead of the 2014 review of WSIS outcomes.

130. The fourth edition of the ITU report, *Measuring the Information Society,* features two benchmarking tools – the ICT development index and the ICT price basket. The ninth World Telecommunication/ICT Indicators Meeting focused on global development targets, broadband infrastructure and access indicators, investment, e-waste and household ICT surveys. OECD published the *Guide to Measuring the Information Society* during 2011.

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[88] http://www.unctad.org/Templates/Page.asp?intItemID=1584&lang=1.

[89] http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-MEAS_WSIS-2011-PDF-E.pdf.

III. Findings and suggestions

131. The reach of mobile networks and number of mobile cellular subscriptions have grown exceptionally fast. As a result, the WSIS target that "more than half the world's inhabitants" should have access to ICTs "within their reach" has in effect been met with respect to mobile telephony. Internet growth has been extensive and continues, supported by the widespread deployment of broadband networks in developed countries and investment in broadband elsewhere. ICTs have grown rapidly in importance and pervasiveness in developing countries. Nevertheless, by the end of 2011, only one third of the population was using the Internet, and only one fourth in developing countries.[90] In addition, broadband growth in LDCs has been less dynamic, suggesting that they may be falling further behind other countries.

132. Some recent developments were not widely anticipated during WSIS, including the rapid development of mobile Internet, the exceptionally rapid growth of social networking, and innovations such as cloud computing. These developments, mostly led by private-sector businesses, have enabled new Internet uses and significantly affected relationships between citizens, creators, businesses and governments. They illustrate the rapid pace of change in ICTs, which makes it difficult for policymakers to predict trends and integrate them in development plans.

133. Lack of affordable infrastructure inhibits many countries from taking full advantage of ICTs. Development outcomes do not depend on technology alone, but on the interaction between technology and other factors, including the availability of electricity, human skills and enabling institutional and legal frameworks. Progress in areas such as enterprise development, education and the ICT sector is closely interdependent. Initiatives such as mobile banking and transactions have been more successful in some countries. The regulation of ICT markets can have profound effects on investment and affordability. The rapidly increasing amounts of e-waste call for sustainable life-cycle approaches for ICT equipment management. Governments and development partners should put more emphasis on understanding interactions between technology and other social, economic, cultural and legal factors, and on integrating ICT policy with policies in other domains.

134. Other constraints affecting progress towards WSIS outcomes have been raised by different agencies. Some are technical, such as the relatively slow implementation of Internet protocol version 6, needed to expand the Internet address space. Others are concerned with legislative reform, such as the establishment of a legal framework for e-commerce. Others again depend on improvements in human capacity, such as increasing the supply of teachers with ICT skills and IT managers in areas such as trade facilitation.

135. The United Nations and other international bodies are preparing for the ten-year review of WSIS outcomes. In its report, Implementing WSIS Outcomes, the CSTD secretariat emphasized the need for this review not just to look back to targets and objectives set by WSIS, but to look forwards from the new technological and market changes that have taken place since then. ITU and the Partnership for Measuring ICT for Development have proposed indicators for measuring the WSIS outcomes in light of changing circumstances.[91] Their work will help overcome the previous lack of well-defined targets for WSIS outcomes and enable a clearer picture to emerge of achievements and weaknesses. As the review proceeds, it will be important to assess the impact of the private sector and civil society as well as that of governments and international organizations.

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[90] http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html.

[91] http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-MEAS_WSIS-2011-PDF-E.pdf.

136. The IGF and WSIS Forum are valuable forums for exchanging information and ideas between governments, businesses and civil society stakeholders. Recent changes to the WSIS Forum have been welcomed, but agencies believe there is scope for further improvement, for example in collaboration between action-line facilitators. Participation in IGF and the WSIS Forum is broadening, but concerns are still expressed at the under-representation of development ministries, business Internet users and some LDCs. More emphasis could be placed in other international forums, such as UNCSD, on the relationship between the information society and sustainable development. This should be an important theme of the reviews of both WSIS outcomes and MDGs in 2014–2015.